

Remote Water Quality Monitoring for Abandoned Mine Lands

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Water quality monitoring for abandoned mine land projects poses unique challenges. High temporal resolution monitoring for basic water quality constituents will provide general data required for site characterization, but specialized data associated with runoff events is difficult to obtain without full-time on-site personnel. In addition, the low pH often encountered may affect equipment specifications or necessitate more frequent cleaning and calibration. Finally, power and telephone service may not be available. This presentation describes remote water quality monitoring conducted at an abandoned copper mine, and addresses equipment problems. The system monitored precipitation, air temperature, water temperature, pH, conductivity, and water level in a flume (for discharge calculations). The sensors were connected via cable to a Campbell CR10X data acquisition system. Data was accessed and downloaded by computer via a modem and cellular phone connected to the data acquisition system at intervals ranging from daily to every seven days. A solar cell and battery provided power for the system. Battery voltage was also monitored. The data acquisition system also monitored output from the precipitation gage and automatically dialed preset telephone numbers if either a threshold precipitation level or rate of precipitation were exceeded.

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